

ORDER and CONFIRMATION in process industry networks – summary

CollaXion™ platform as a part of open network operations

Collaxion Oy

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Executive summary

Purchase Order and Order Confirmation are commercial business documents that define a trade transaction. In complex multilateral process industry lifecycle business the related engineering and plant asset information is at least as important and valuable as goods (hardware), the subject of the trade. Sometimes the information itself is the subject of the trade. Digitalization of the order and confirmation process means that all the information exchange must be automated – this includes both commercial and technical data. To reclaim the maximum benefits both the buyer and seller have to digitalize the corresponding workflows. Currently that can happen only occasionally in point-to-point cases or with simpler bulk products via e-catalogs when technical information exchange is irrelevant.

CollaXion™ is a new business digitalization platform for process industry's investment projects and for operations & maintenance. CollaXion™ is also a collaboration platform facilitating informal communication. Different types of buyer's or seller's portals have been necessary steps in the evolution of digitalization towards the fully open network solutions. In the future the buyer's and seller's portals must be connected and their interface and related processes digitalized. To make this happen effectively requires global information exchange standardization and open network operators. Both already exist for exchanging commercial business documents. CollaXion™ completes the picture by facilitating technical information exchange, where still uncompleted global standardization must be compensated by different emerging industry and market area specific business ecosystems.

The main benefits of the CollaXion™ facilitated information flow are:

- Elimination of a lot manual information handling for larger business networks
- Capture of all information handled during the order - confirmation process whether information is formal or informal, standardized on non-standard
- Easy and low cost scalability to increase the network of partners in a network without big initial investment

Purchase Order

A purchase order (PO) is a commercial document and first official offer issued by a buyer to a seller, indicating types, quantities, and agreed prices for products or services. The purchase order (or call-off in agreement-based business) workflow can be sent and received digitally or using many variations of manual processes. It is one electronic document in the CollaXion™ platform's equipment and service procurement processes. Sending the order is, however, just one part of the entire order workflow from buyer to supplier. From the buyer's viewpoint sending could be considered to happen automatically (digitally/electronically), if buyer's ERP sends the order printout with some level of automation to the seller's e-mail address. But the workflow is still manual, as the receiver has to handle it manually. Digital order workflow means that both the buyer and seller have digitalized the order handling processes.

The subjects of an order could be

1. products or services that have been agreed on a preceding quotation (order refers to the quote)
2. products or services in a separately agreed e-catalog (order refers to the item code on the e-catalog)
3. products or services based on a general agreement, where buyer relies on seller's expertise (order refers typically to a functional location or its operational requirements - item code is not known in advance)

The first case is typical in investment projects. The last two cases (2nd and 3rd) appear usually in normal operations and maintenance phase according to a mutually approved longer term agreement. Successful industry network players must have capabilities to handle all these subjects – either manually or digitally. From the digitalization viewpoint the 2nd case (e-catalog order) is, of course, the easiest to automate but the other two offer opportunities to add value to the operations & maintenance processes as the transactional information can be augmented with additional information collected during the purchase process.

The UBL¹-based DBE Core standard defines the commercial attributes that an order contains. If the item to be ordered is known in advance – by quotation or by order item code (1st and 2nd) – the order directly follows UBL standard. The responsibility to deliver the exactly right product or service is in 1st case with the supplier and in the 2nd case with the buyer. From buyer's point of view this naturally means that in all more complex cases orders based on preceding quotations (1st case) will be preferred. The word complex means complexity of the product configuration which, of course, is heavily dependent on the competence level of the buyer. With complex products the usage of e-catalogs demands expertise that might not be available at the buyer's side.

In the last (3rd) case the buyer fully trusts seller's competence to provide the right product or service that fits exactly to the location in question (according to the general agreement). This is, naturally, a business opportunity for a supplier.

The digitalization of order workflow creates transactional cost savings both to the buyer and to the seller in all three cases. From information value point of view the 1st and the 3rd cases offer an opportunity to cumulate information about the functional location of the order subject. The received information and documentation can always be automatically linked with correct location. For the buyer this means that the

¹ UBL is an internationally approved OASIS standard (<http://docs.oasis-open.org/ubl/cos1-UBL-2.1/UBL-2.1.html>)

correct information to operate and maintain the facility will always be available. Seller, on the other hand, has a better opportunity for relevant aftersales activities and for planning eventual service work in advance (preventive maintenance in service contracts).

In the 1st case, at the end of the quotation phase, the functional location and detailed requirement (e.g. equipment operational requirements from process engineering) information is normally already agreed, so this information has already been shared. Order will be made based on this. Unfortunately, this information often loses its integrity in the delivery phase because the location information at EPC and supplier has not been synchronized. This may happen when changes occur or because the location notations at maintenance management system may be different to those used by engineering. If CollaXion™ platform is not in use this means that the data and document delivery will be separate efforts starting from scratch.

Order Confirmation

Order confirmation is a commercial document indicating acceptance of a purchase order by a seller. This acceptance forms a contract between the buyer and seller, and no contract exists until the purchase order is accepted. The UBL-based DBE Core standard defines also the commercial attributes that an order confirmation contains.

Order confirmation workflow is an end-to-end process that is digitalized when sending and receiving happens automatically in the corresponding (ERP-) systems. The order confirmation event is also an incidence that opens opportunities for financial institutions to finance orders. Transactional cost savings are available through digitalization of the order confirmation workflow.

The current (traditional) way

The most common way for purchase order and confirmation workflow implementations is still manual even though majority of the process industry network companies have their own ERP systems to manage related internal information electronically. Capabilities to receive order or confirmation are not on the level that they could happen automatically or these capabilities are not used. The first digital implementations are in cases where the products to be purchased are standardized and simple enough to be described and agreed in open or customer specific e-catalogs (2nd case).

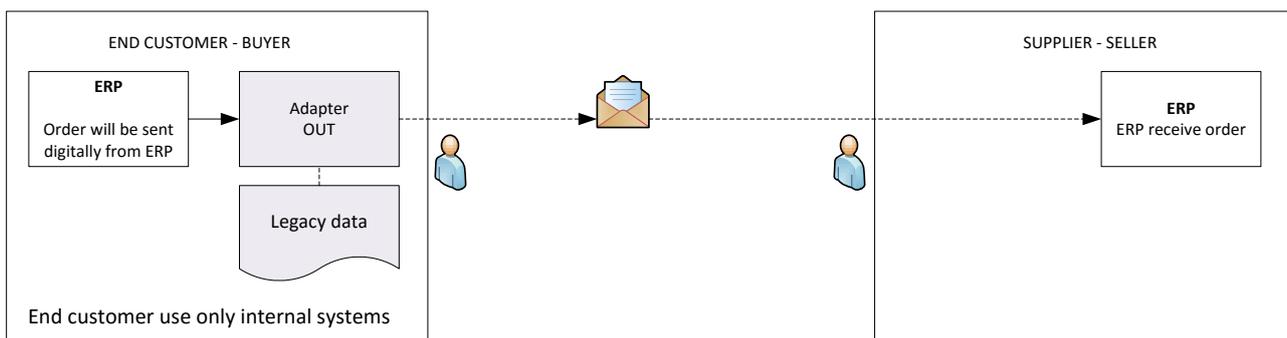


Figure 1. The Purchase Order is still a pdf-file attachment in an e-mail even though it is typically created electronically by ERP.

As described earlier, the buyer can justifiably consider that the order is sent automatically from his ERP, but it does not mean that the order workflow is digitalized. The seller will bring the order information manually into his ERP, which often is slow and error prone.

The main disadvantage from the buyer's viewpoint is that during the normal operation and maintenance phase the seller is not able to link any delivery related information or documents back to his ERP and maintenance management systems. This means deteriorating asset information and operative performance. In investment projects, when the asset information and documentation will be delivered first time, there are often settled, buyer specific, arrangements in use (e.g. tailored transfer files).

The seller's ERP systems will create the order confirmation. Similarly to order it will be printed out to pdf-file. The buyer receives it and logs it into his ERP manually.

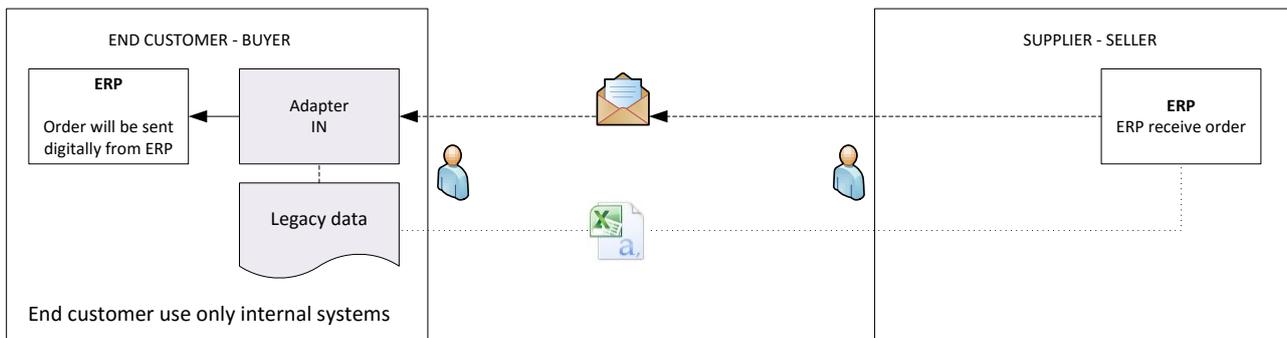


Figure 2. Confirmation is typically a pdf-file attachment in an e-mail. Related technical data will be sent using separate transfer files (in customer or supplier specific data format).

The development target – digitalized order workflow

Full digitalization will offer remarkable benefits for all the three previously mentioned purchase order cases. Digitalization can be done – and this work has already been started – in many different ways. The specific portal solutions at the buyer or seller side have started more than a decade ago and they are still evolving. These portals are miscellaneous extranet solutions outside the company's firewall. Portals are necessary steps in the evolution of digitalization towards the fully open network solutions, as they have opened the idea that, somehow, you need to connect your business partners with your internal business processes and systems.

CollaXion™ development target is described in Figures 3 and 4. On both sides the seller and the buyer have integrated their ERP systems to CollaXion™ platform. The idea of the truly open network means that instead of CollaXion™ you can select any other messaging operator. That is possible if all operators follow common standards (as with mobile phone calls or e-invoices). UBL (Universal Business Language) is an internationally approved standard for commercial business documents such as Order or Confirmation. Unfortunately, such widely accepted standards for technical data and documentation do not exist – even though the number of appropriate different standards is big. This means that so far the open network idea concerns only commercial business documents – not technical information exchange. Also, it may be reasonable to assume that some technical equipment are so complex and unique that standard description languages may not ever be able to capture all the important pieces of information about them.

How, then, to connect the technical information and document exchange to Order and Confirmation workflows? If everybody is using different technical standards in their internal systems, is there any sense to exchange technical information and documents? Basically technical data exchange standardization, which is its own class of standards, exists already. Buyers and sellers should have had selected standards

applicable for them together preferably conclusively once, not project by project as the current way is. However, as there are so many different technical disciplines, industry areas as well as local regulations and traditions, no one has been capable of applying them properly so far.

It's important to remember that there will always be a need to clarify special issues interactively and informally. Special attributes of complex products, special applications, delivery changes, expert services etc., they all are things that cannot be enclosed in formal business messages. However, this can't be an excuse to neglect digitalization. Instead, this informal communication should be bundled in the digitalization solution as we do with CollaXion™ platform. In that sense CollaXion™ is also a collaboration platform.

We believe that also in the future companies are doing business in their own industry specific ecosystems using their own constantly evolving back-end systems and internal standards. However, on the long run ecosystems should have the same information exchange standards and they will apply those standards according to their own rules. Collaxion is building such an ecosystem together with Nordic industry. The same principles can be applied in all other ecosystems, only rules will be varying. CollaXion™ manages these rules for each partnership individually, i.e. allowing every company to agree information exchange rules with each partner individually.

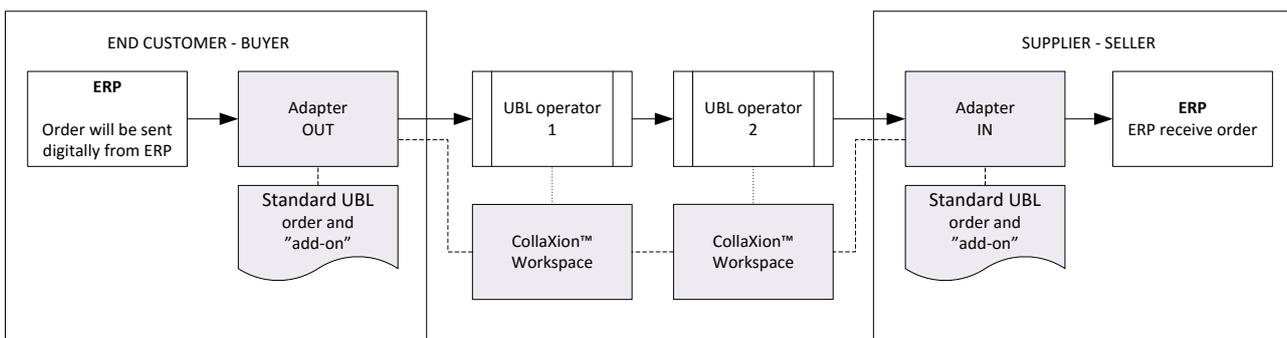


Figure 3. Fully digitalized order workflow.

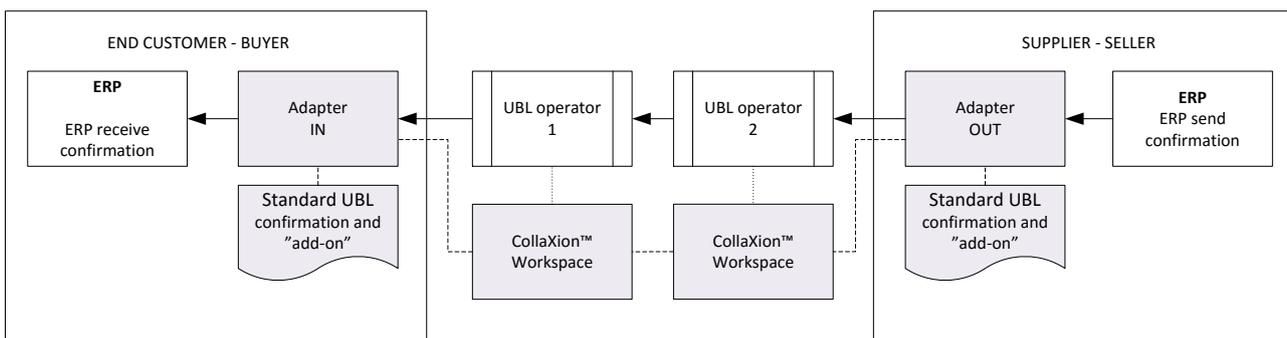


Figure 4. Fully digitalized order confirmation workflow.

The development target - implementation aspects

If the buyer and seller are both connected to CollaXion™, digitalization will offer full benefits for both. Note, that the commercial business documents can be transmitted by any operator that follows UBL standards. This brings flexibility to arrange data exchange.

The digitalization path for every company will be different. The pioneering companies have started systematic internal process development more than a decade ago by developing sophisticated portal solutions. As discussed earlier portals are not the full end-to-end solution but a necessary step to the right direction. Buyer's and seller's portals must be connected and intercommunication digitalized. But that cannot be happened in one instant.

Companies' IT maturity levels for information exchange are different. Most portals are insufficient or not properly connected the company's back-end systems. Or, more importantly, the company's internal processes are not planned to support effective information exchange with business partners – not because they have been lazy but because of too many possible alternatives in their businesses. The IT maturity levels of those companies are low in this regard. Luckily there are bunches of pioneering companies that already know what digitalization requires from portals – IT maturity level for them is high.

Some of the largest players of the software industry such as SAP/Ariba, Oracle, B-PACK, GEP or Procurify are able to offer end-to-end solutions for commercial business documents if the users are committed to the on platform in question. In that sense they are offering high-end portal solutions to their customers. Several world-class companies already apply these solutions.

But as said, portals must be interconnected. Cost effective open network solutions that have started from invoicing are known as brokering solutions. Portals need brokers as we have seen happening with invoices. CollaXion™ is a brokering platform that can provide low cost connectivity to open network also for those companies that are not yet mature enough to create their own network adapters. Those companies that already use high-end portals are mature enough to easily connect to open network. Open network means more connections.

As mentioned, the technical information exchange is not yet completely agreed by international standards. Standardization work continues. This means that the technical information exchange does not fulfill open network requirements. In order to be able to exchange technical information CollaXion™ platform is needed. It can operate in parallel with exchanging the open network commercial business documents.

CollaXion™ provides special portal solutions for those business partners that don't have CollaXion™ connectivity yet. Buyers can use CollaXion™ Vendor and Service Portals as shown in Figure 5. The order can be sent and received digitally via any operator, not only via Collaxion. The suppliers using portals can communicate and exchange data and documents (e.g. delivering technical data and documents as shown in Figure 6). Functionally it correspond e.g. SAP Ariba properties (which includes an adapter to buyer's SAP).

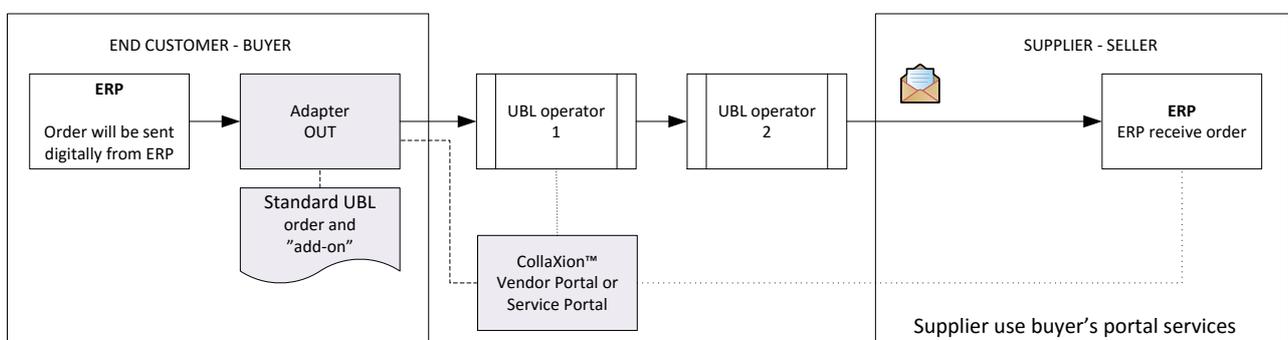


Figure 5. Ordering can happen digitally via any operator or order can be manual. Buyer provide CollaXion™ Vendor or Service Portal for the supplier for supplier communication and information delivery. Functionality corresponds e.g. SAP Ariba properties (that includes the adapter).

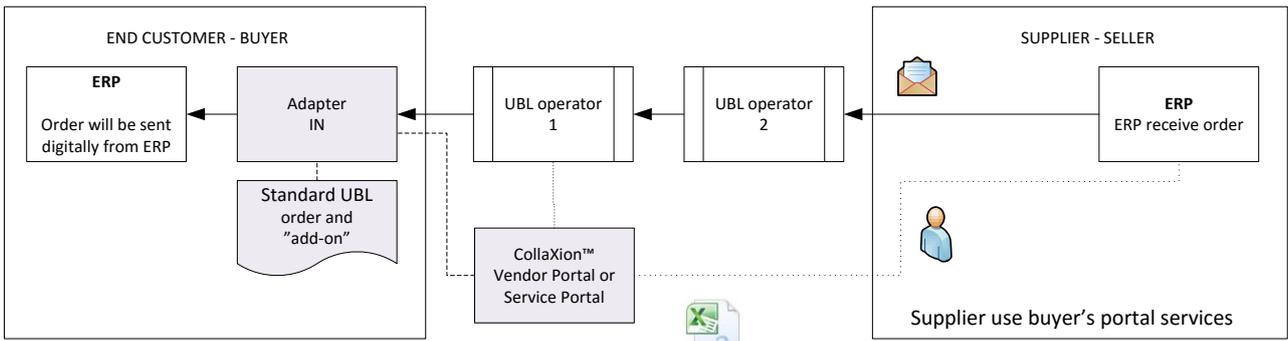


Figure 6. Confirmation can happen digitally via any operator or it can be manual. The end-customer communicates and receives delivery information via CollaXion™ Vendor or Service Portal. Functionality corresponds e.g. SAP Ariba properties (that includes the adapter).

If a buyer does not have CollaXion™ connectivity but the seller does, the seller can utilize CollaXion™ Shared Customer Portal for communication and sharing data and documents with the customer (see Figures 7 and 8). Suppliers having the high-end portal solution (such as Endress+Hauser) have this facility typically as a standard. For them CollaXion™ brings additional value only if their customers are connected to CollaXion™. In that case the end-to-end workflow is very easy to establish.

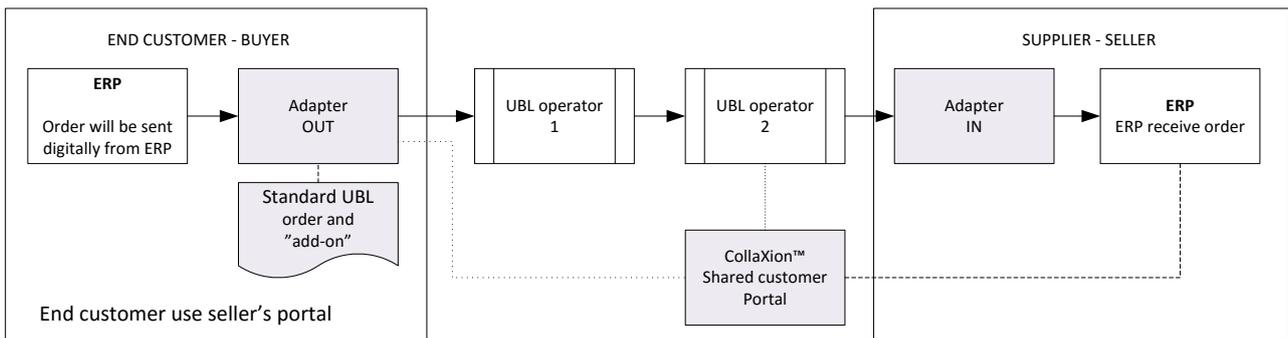


Figure 7. Ordering can happen digitally via any operator or order can be manual. CollaXion™ is not necessarily needed but can be included.

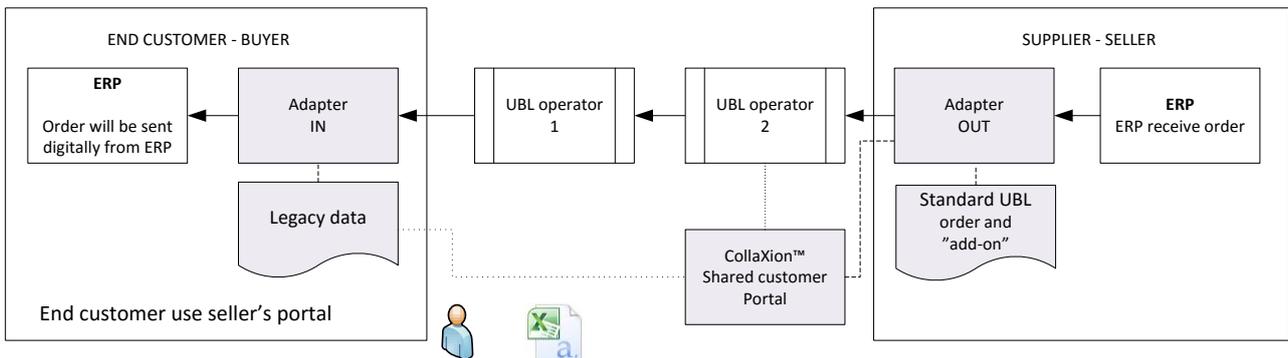


Figure 8. Confirmation can happen digitally via any operator or it can be manual. Supplier will share all delivery information via CollaXion™ shared customer portal.